

# The native monomer of bacillus pumilus ribonuclease does not exist extracellularly

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## Abstract

Copyright © 2018 Olga Ilinskaya et al. Supported by crystallography studies, secreted ribonuclease of *Bacillus pumilus* (binase) has long been considered to be monomeric in form. Recent evidence obtained using native polyacrylamide gel electrophoresis and size-exclusion chromatography suggests that binase is in fact dimeric. To eliminate ambiguity and contradictions in the data we have measured conformational changes, hypochromic effect, and hydrodynamic radius of binase. The immutability of binase secondary structure upon transition from low to high protein concentration was registered, suggesting the binase dimerization immediately after translocation through the cell membrane and leading to detection of binase dimers only in the culture fluid regardless of ribonuclease concentration. Our results made it necessary to take a fresh look at the binase stability and cytotoxicity towards virus-infected or tumor cells.

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